



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,214	06/27/2001	Hideki Inomata		4819

2292 7590 09/07/2005

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

VO, TUNG T

ART UNIT	PAPER NUMBER
----------	--------------

2613

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/894,214	Applicant(s) INOMATA ET AL.	
	Examiner Tung Vo	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,21,22 and 28-35 is/are pending in the application.
 4a) Of the above claim(s) 6-20 and 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5,21,22 and 28-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/04/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/19/2005 has been entered.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 08/04/2005 has been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 21, 22, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Florentin (US 5,835,147).

Re claims 21, 22, and 34, Florentin discloses a picture conversion (20 of fig. 3) method for use with picture coding method for coding source picture data after picture conversion,

comprising: temporally converting a picture data format based on coding difficulty information using at least temporal conversion to reduce temporally-redundant information (col. 4, lines 17-31, e.g. signal is the temporal redundancy information); wherein the coding difficulty information (58, 59, 66 of fig. 3) is information about the source picture data, including at least one of: spatial frequency component information, noise component information, inter-frame change information, and inter-frame motion vector information (motion estimator, 58 of fig. 3).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 28-33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 6,466,625 B1) in view of Florentin et al. (US 5,835,147).

Claims 1-2, 5, 28, 32, and 35, Kobayahsi teaches a picture coding apparatus comprising: a picture analyzing unit (15 of fig. 17, e.g. the MV detection (25) detects the source picture data to estimate the motion vector called coding difficulty information) for analyzing source picture data to obtain coding difficulty information; a picture conversion unit (23 of fig. 17, e.g. the pre-filter is converting the source picture data into a picture format) for converting a picture format of the source picture data; an coding limit (24 of fig. 17, e.g. the encoder is encoding the picture format into a bit stream, encoded bitstream) for encoding a picture data converted by the picture conversion unit; and a conversion controller (28 of fig. 17, e.g. the pre-filter control is

controlling the pre- filter (23)) based On the motion Vector, Coding difficulty information) for controlling the picture conversion unit based on the coding difficulty information to convert the picture format using spatial conversion, temporal conversion, or both (see Fig. 19B and Fig. 20, e.g. ST31- 5-1-47 of fig. 20, e.g. controlling the process of pre-filtering).

Moreover, Kobayashi teaches wherein the coding difficulty information is information about the source picture data, including at least one of: spatial frequency component information, noise component information, inter-frame change information, and inter-frame motion vector information (46, MV, of fig. 17), and further describes the pre-filter control information storage circuit (26), fed with the block address mb current of the current small block and the motion vector MV of the current small block, reads out the filter coefficient k-ref (2) and k ref (3), as parameters for specifying the pass-band limitations of the low-pass pre-filters used in the small blocks of the future reference picture and the past reference picture, referred to in the inter-frame prediction of the current small block, and the filter coefficient k-ref (4) as a parameter specifying the pass-band limitations of the low-pass pre-filter used by the small block at the same spatial position as the temporally neighboring picture, to send the read-out filter coefficients to a interpolation circuit (48 of fig. 17); the described above obviously shows converting a picture data format based on coding difficulty information using at least temporal conversion (col. 14, lines 57-62, e.g. temporally/spatially different low-pass band can be produced by low- pass filter, indicating the temporal conversion is used).

It is noted that Kobayashi suggests the temporal different low-pass- filter for used in the pre-processing but Kobayashi does not particularly teach temporal conversion being performed using at least frame/field decimator eliminating redundant frames and/or fields as claimed.

However, Florentin teaches the digitizing pre-processor (20 of fig. 1) processes an input video signal, such as one in the RS 170 standard format. The pre-processing can include, but is not limited to, *conversion* from an analog signal to a digital one, *low pass filtering and horizontal and vertical decimation*. Decimation typically involves *reducing* the number of pixels in each frame, typically by removing every n pixels per row (*horizontal decimation*) and/or per column (*vertical decimation*). The factor n can be of any number, for example, 2. This suggests temporal conversion being performed using at least frame/field decimator eliminating redundant frames and/or fields as claimed.

Therefore, taking the combined teachings of Kobayashi and Florentin as a whole, it would have been obvious to one of ordinary skill in the art to incorporate preprocessor (20 of fig. 1) includes conversion and decimation of Florentin and Kobayashi to reduce redundancy of the image information. Doing so would improve encoding efficiency.

Re claim 3, Kobayashi discloses wherein the coding unit encodes picture data based on conversion information input thereto by the picture conversion unit, and multiplexes the conversion information to the picture data (k current, MV, S21, 522 of fig. 17).

Re claim 4, Kobayashi discloses wherein the picture-analyzing unit analyzes the source picture data using a specific threshold value (fig. 21). Re claim 5, Kobayashi discloses wherein the picture analyzing unit determines the threshold value based on a coding result from the coding unit (46, 47, 28, 48 of fig. 17, the threshold value is based on the bandwidth of encoding from the encoding unit 24 of fig. 17).

Re claim 29 and 31, Kobayashi further discloses wherein said converting includes converting the picture data format based on coding difficulty information using both said

Art Unit: 2613

temporal conversion and spatial conversion and encoding the picture data based on conversion information being input by said conversion (col. 15, lines 58-64, e.g. pre-filtering characteristics of the small block under current encoding are set by interpolation based on the pre-filtering control information of the small blocks in the same spatial positions of the temporally previous and temporally succeeding p-pictures, both spatial conversion and temporal conversion are used and then encoding the conversion information).

Re claim 33, Kobayashi further teaches a method for coding a picture, comprising: determining coding difficulty information from input source picture data (46 of fig.17); converting a picture format of the source picture data (23 of fig. 17); encoding picture data converted by the picture conversion unit (24 of fig. 17); and controlling the converting of the picture format based on the coding difficulty information using at temporal conversion (26, 28, and 48 of fig. 17, e.g. there will be produced small blocks having temporally/spatially different low-pass bands); controlling the encoding based on conversion information determined from said converting (48 of fig. 17).


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tung Vo
Primary Examiner
Art Unit 2613